Comments of the Natural Resources Defense Council (NRDC) on the
2007 Integrated Energy Policy Report (IEPR)
Scenario Analyses of California's Electricity System

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I. Introduction and Summary

The Natural Resources Defense Council (NRDC) appreciates the opportunity to offer these comments on the California Energy Commission's (Commission) *2007 Integrated Energy Policy Report (IEPR)* Scenario Analysis effort discussed most recently at the July 9, 2007 Committee workshop. NRDC is a non-profit membership organization with a long-standing interest in minimizing the societal costs of the reliable energy services that Californians demand. We focus on representing our more than 124,000 California members' interest in receiving affordable energy services and reducing the environmental impact of California's electricity consumption.

We are pleased that the Commission is pursuing scenario analysis as part of the 2007 IEPR. The draft staff report "Scenario Analyses of California's Electricity System: Preliminary Results for the 2007 Integrated Energy Policy Report" (draft report) is the first step in fully utilizing scenario analysis as a planning tool in California. This effort can be valuable in informing Californians and policy makers when they make comparisons of the greenhouse gas emissions and supply mixes associated with potential policies pursued in the implementation of Assembly Bill 32 (AB 32). We have previously also submitted comments on the scenario analyses on June 29, 2007. Below we respond to several of the questions posed in the "Proposed Questions for July 9, 2007 Workshop." In summary, our comments are:

- At least one scenario should be developed that meets the Governor's goal of a 33 percent renewable portfolio standard (RPS) by 2020, achieve proxy AB 32 greenhouse gas emission reductions in the electric sector by 2020, and be constrained by the emission standard mandated under Senate Bill 1368 (SB 1368).

- The cost of emitting greenhouse gases should be incorporated in the total cost associated with each scenario.
- Annual levelized total costs should be the primary metric for evaluating scenario cost.

II. General Review

1. *Do the scenario results indicate that estimated responses to existing policies are likely to lead to acceptable outcomes, or are new policies needed? Has passage of AB 32 (2006), and its focus on GHG emission reductions, essentially redefined what is considered an acceptable outcome?*

It is difficult to use the current scenario analysis to evaluate whether or not existing policies are likely to lead to acceptable outcomes or if new policies are needed. The current scenarios presented in the draft report do not meet existing policy goals. Specifically, none of the scenarios meet the 33 percent by 2020 RPS goal supported by the governor and the Commission. Case 4a, the high renewable case, achieves roughly only 30 percent renewable based generation (Table 2-1, p. 21) by 2020.

We recommend that at least one scenario achieve the 33 percent RPS goal by 2020. Ensuring that one scenario meets this goal will significantly increase the value of the scenario results in gauging the effects of likely future state policy. Without developing a scenario that meets the RPS goal it will be impossible to gauge the full effect of a 33 percent RPS on greenhouse gas emissions and system costs.

Perhaps one of the largest potential values of these scenario analyses is in using them to inform the implementation of AB 32 in the electric sector. It is useful that the July 2007 Addendum to the draft report now includes a figure with the electricity sector's 1990 emissions to which to compare the various scenarios (Addendum, Figure 1, p. 14); however, the Addendum incorrectly states that the "2020 carbon goal for the electricity sector" is the sector's 1990 emissions (Addendum, p. 3). AB 32 requires that California reduce its *statewide* greenhouse gas emissions to 1990 levels by 2020. While a 2020 emission limit has not been set specifically for the electric sector, the 1990 emissions level of the electricity sector is a useful reference point to compare to the scenarios analyzed. As the Addendum notes, none of the analyzed scenarios reaches 1990 levels. We strongly urge the Commission to develop at least one scenario that reduces greenhouse gas emissions in the electric sector to 1990 levels by 2020. Such a scenario would help inform the state as to whether existing policies are sufficient or if new policies may be needed to help the state reach its AB 32 goals.

Further, other existing clean energy policies of the state are not taken into account in the draft report. Senate Bill 1368 (SB 1368) established a greenhouse gas performance standard "for all baseload generation of load-serving entities, at a rate of emissions of greenhouse gasses that is no higher than the rate of emissions of greenhouse gases for combined-cycle natural gas baseload generation" (SB 1368, Perata 2006). Recently, the Commission, along with the California Public Utilities Commission (CPUC), adopted rules and regulations that define this rate to be 1,100 pounds of CO_2 per MWh.[1] However, the requirements of SB 1368 were not used as a constraint in any of the scenarios presented in the draft report. We suggest that the Commission work to develop at least one scenario that is constrained by the SB 1368 emission standard. NRDC is happy to work with Commission staff to implement such a restraint in at least one of the scenarios.

In sum, NRDC recommends that at the minimum, a scenario be developed that meets the 33 percent RPS goal, that meets a proxy AB 32 emission limit in the electric sector, and that is constrained by the emissions performance standard mandated by SB 1368. Doing so will better allow policy makers to determine whether or not existing policies are likely to lead to acceptable outcomes or if new policies are needed.

2. *How can the insights gained from examining the results of the scenario project be used to 1) determine if new policies should be implemented or existing policies changed and 2) how to fashion these changes and new policies so they are adaptive (are flexible enough to change as knowledge about the future changes) and robust enough to avoid bad outcomes under a wide range of plausible futures.*

With the scenarios presented in the draft report it is difficult to determine if new policies should be implemented or existing policies changed. At least one scenario that

[1] CPUC D.07-01-039, January 25, 2007 and CEC Order No. 07-0523-7. Although the CEC's regulations have not yet been approved by the Office of Administrative Law (OAL), OAL's July 2, 2007 disapproval was limited to specific areas of the CEC's regulations unrelated to the level of the standard.

meets the policies noted above (33% RPS, AB 32, SB 1368) must be developed if the results are to provide insight on the effectiveness of current policies.

III. Applicability to GHG Emission Reduction Strategies

3. *Are the results of the scenario project suitable for use in estimating the consequences of additional large scale penetration of energy efficiency, rooftop solar photovoltaic, and supply-side renewable generation that LSEs might pursue in compliance with a load-based interpretation of AB 32 carbon emission reduction requirements?*

The results of the scenario analyses will be much more useful in estimating the consequences of addition of large scale penetration of energy efficiency and renewable generation if scenarios are developed that meet a proxy AB 32 emission limit in the electrical sector and that are constrained by existing state policy and policy goals.

4. *Are the results of the Scenario Project likely to be useful to the inter-agency team (CARB, CPUC and Energy Commission) in understanding the potential cost consequences of additional large scale penetration of EE, rooftop PV, or supply-side renewables as GHG emission reduction measures?*

It is probable that the results of the scenario analyses will be useful in understanding the potential savings and expenses associated with increased energy efficiency investment and large scale renewable generation investment. If the aim is to truly understand the costs and benefits of greenhouse gas reduction measures it is important to incorporate a cost of emitting greenhouse gases in the scenarios. It is clear that global warming will have an effect on California.[2] To assign a cost of emitting greenhouse gases of $0 per metric ton of CO2-equivalent effectively ignores the benefits of zero or low emissions of greenhouse gases provided by energy efficiency and renewables. Giving policy makers a sense of how the average annual levelized system cost changes for different scenarios with several assumed costs of emitting greenhouse gases will be critical as the state evaluates emission reduction options. At the minimum, we suggest a low, medium, and high cost of greenhouse gas emissions be applied to the scenarios in the final report. For reference, New Mexico has adopted GHG emission costs of $8, $20, and $40 per metric ton of CO2-equivalent for long-term utility planning,[3] and

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[2] See the most recent Climate Action Team report

[3] See: "Order Approving Recommended Decision and Adopting Standardized Carbon Emissions Costs for Integrated Resource Plans," D.06-00448-UT.

the Idaho Power 2006 Integrated Resource Plan modeled the cost of carbon as high as \$50 per metric ton of CO2-equivalent.[4] Presenting total system costs (average annual levelized costs) data with and without the cost of greenhouse gas emissions will add significant value to the final report.

5. *Are there specific design or data limitations that limit the usefulness of applying results to LSEs? Could such limitations be reduced or eliminated by further analyses? What is the timeframe required to conduct these additional analyses?*

We believe that the development of a scenario that is constrained by the policies in place that directly impact LSEs will significantly increase the usefulness of applying the results to LSEs. As we note above, developing a scenario that meets an AB 32 2020 emission limit proxy, meets the 33% RPS goal, and is constrained by SB 1368 will address some of the design limitations that currently limit the usefulness of applying the scenario analyses results.

IV. Stepping Stone Toward Future IEPR Assessments

6. *The Scenario Project reports and supporting documentation describe sensitivities that assess fuel prices, and "shocks" to the baseline assumptions that give some degree of information about variability of results. What other variables ought to have been assessed in this manner? Regardless of any limitations on the uncertainty of such variables, is sufficient information about alternatives available that a sensitivity assessment was feasible? If not, what other methods might be employed to expressly account for plausible ranges of uncertainty in input assumptions?*

Sensitivity analysis should be performed on the cost of emitting greenhouse gases. As we note in our comments in question 4 above, it will be useful to understand how system costs change with varying costs of emitting greenhouse gases.

V. Miscellaneous Comments

Annual levelized total costs should be the primary metric for evaluating scenario cost.

We incorporate, by reference, our comments submitted June 29, 2007 regarding the use of annual levelized total costs as a primary metric for evaluating and presenting scenario costs.

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[4] See: Idaho Power, *2006 Integrated Resource Plan*, p. 79.

VI. Conclusion

In conclusion, NRDC thanks the Commission for the opportunity to comment on the issues discussed at the July 9, 2007 Scenario Analysis workshop and we look forward to continued involvement in the IEPR process.